

CLAIMS

What is claimed is:

1. A method for determining a number of days to maximum value to continue feeding an
2 animal prior to processing the animal in order to obtain a predetermined maximum value for
the animal, said method comprising the steps of:
 - 4 (a) acquiring an image of a predetermined internal location within the animal;
 - (b) measuring a percentage of intramuscular fat within said image acquired in step (a);
 - 6 (c) determining said number of days to maximum value from said percentage of
intramuscular fat measured in step (b); and
 - 8 (d) processing the animal after the animal has been fed for substantially said number of
days to maximum value.
2. The method of claim 1 wherein step (a) further comprises the following step (a1) and step
2 (c) further comprises the following steps (c1) and (c2):
 - (a1) measuring a height of the animal;
 - 4 (c1) adding a predetermined number of days to said number of days to maximum value
when said height of the animal is greater than a predetermined height for a same type
6 of animal; and
 - (c2) subtracting a predetermined number of days from said number of days to maximum
8 value when said height of the animal is less than said predetermined height for a
same type of animal.
3. The method of claim 1 wherein step (a) further comprises the following step (a1) and step
2 (c) further comprises the following steps (c1) and (c2):
 - (a1) measuring a width of the animal;
 - 4 (c1) adding a predetermined number of days to said number of days to maximum value

when said width is less than a predetermined width for a same type of animal; and
6 (c2) subtracting a predetermined number of days to said number of days to maximum
value when said width is greater than said predetermined width for a same type of
8 animal.

4. The method of claim 1 wherein step (a) further comprises the following step (a1) and step
2 (c) further comprises the following steps (c1) and (c2):

(a1) measuring a weight of the animal;
4 (c1) adding a predetermined number of days to said number of days to maximum value
for each incremental amount said weight of the animal is less than a predetermined
6 weight; and
(c2) subtracting a predetermined number of days from said number of days to maximum
8 value for each incremental amount said weight of the animal exceeds said
predetermined weight.

5. The method of claim 1 wherein step (a) further comprises the following step (a1) and step
2 (c) further comprises the following step (c1):

(a1) inputting a breed type of the animal from a user of the system; and
4 (c1) adjusting said number of days to maximum value by a predetermined number of days
for each breed of animal.

6. The method of claim 1 wherein step (a) further comprises the following step (a1) and step
2 (c) further comprises the following step (c1):

(a1) inputting a geographic location where the animal is fed from a user of the system;
4 and
(c1) adjusting said number of days to maximum value by a predetermined number of days

- 6 for each of a plurality of predetermined geographic locations.
7. The method of claim 1 wherein step (a) further comprises the following step (a1) and step
2 (c) further comprises the following step (c1):
- (a1) inputting an age of the animal from the user of the system; and
- 4 (c1) adjusting said number of days to maximum value by a predetermined number of days
when said age of the animal is less than a predetermined age.
8. The method of claim 1 wherein step (a) further comprises the following step (a1) and step
2 (c) further comprises the following step (c1):
- (a1) inputting a type of feed ration being given to the animal from the user of the system;
4 and
- (c1) adjusting said number of days to maximum value by a predetermined number of days
6 for each predetermined type of feed ration being given to the animal.
9. The method of claim 1 wherein step (a) further comprises the following step (a1) and step
2 (c) further comprises the following step (c1):
- (a1) determining a sex of the animal; and
- 4 (c1) subtracting a predetermined number of days from said number of days to maximum
value when said sex of the animal is female.
10. The method of claim 1 wherein step (c) further comprises the steps of:
- 2 (c1) determining a feeding pen for the animal from said number of days to maximum
value; and
- 4 (c2) directing the animal to said feeding pen determined in step (c1).

11. The method of claim 1 wherein step (c) further comprises the steps of:
- 2 (c1) creating an individualized identification device containing said number days; and
(c2) inserting said individualized identification device into the animal.
12. The method of claim 1 wherein step (c) further comprises the steps of:
- 2 (c1) creating an individualized identification device containing said number days; and
(c2) attaching said individualized identification device to the animal.
13. The method of claim 1 wherein step (c) further comprises the steps of:
- 2 (c1) creating an individualized identification record containing said number days; and
(c2) retaining said individualized identification record for the animal.
14. The method of claim 1 wherein step (c) further comprises the following step(c1) and wherein
- 2 step (d) further comprises the following step (d1):
- (c1) determining a future date for processing the animal by adding said number of days
- 4 to maximum value to a date when said measurements of step (b) are made; and
- (d1) processing the animal on substantially said future date.
15. A system for determining a number of days to maximum value to continue feeding an animal
- 2 prior to processing the animal in order to obtain a predetermined maximum value for the
animal, said system comprising:
- 4 an imaging device for scanning a predetermined internal location within the animal to create
a scanned image;
- 6 a computer system that reads said scanned image from said imaging device, measures a
percentage of intramuscular fat contained in said scanned image, and determines said
- 8 number of days to maximum value from said percentage of intramuscular fat; and

10 a feeding pen for holding and feeding the animal for substantially said number of days to
maximum value.

16. The system of claim 15 further comprising:
2 a three dimensional measuring system connected to said computer system for measuring a
height of the animal;
4 a sub-system within said computer system for adding days to said number of days to
maximum value when said height of the animal is greater than a predetermined
6 height for a same type of animal; and
a second sub-system within said computer system for subtracting days from said number of
8 days to maximum value when said height of the animal is less than said
predetermined height for a same type of animal.

17. The system of claim 15 further comprising:
2 a three dimensional measuring system connected to said computer system for measuring a
width of the animal;
4 a sub-system within said computer system for adding a predetermined number of days to said
number of days to maximum value when said width is less than a predetermined
6 width for a same type of animal; and
a second sub-system within said computer system for subtracting a predetermined number
8 of days to said number of days to maximum value when said width is greater than
said predetermined width for a same type of animal.

18. The system of claim 15 further comprising:
2 a scale connected to said computer system for measuring a weight of the animal;
a sub-system within said computer system for adding a predetermined number of days to said

4 number of days to maximum value for each incremental amount said weight of the
 animal is less than a predetermined weight; and
6 a second sub-system within said computer system for subtracting a predetermined number
 of days from said number of days to maximum value for each incremental amount
8 said weight of the animal exceeds said predetermined weight.

19. The system of claim 15 further comprising:

2 a keyboard attached to said computer system for inputting a breed type of the animal from
 a user of the system; and
4 a sub-system within said computer system for adjusting said number of days to maximum
 value by a predetermined number of days for each breed of animal.

20. The system of claim 15 further comprising:

2 a keyboard attached to said computer system for inputting a geographic location where the
 animal is fed from a user of the system; and
4 a sub-system within said computer system for adjusting said number of days to maximum
 value for each of a plurality of predetermined geographic locations.

21. The system of claim 15 further comprising:

2 a keyboard attached to said computer system for inputting an age of the animal from the user
 of the system; and
4 a sub-system within said computer system for adjusting said number of days to maximum
 value by a predetermined number of days when said age of the animal is less than a
6 predetermined age.

22. The system of claim 15 further comprising:

2 a keyboard attached to said computer system for inputting a type of feed ration being given
to the animal from the user of the system; and
4 a sub-system within said computer system for adjusting said number of days to maximum
value by a predetermined number of days for each predetermined type of feed ration
6 being given to the animal.

23. The system of claim 15 further comprising:

2 a keyboard attached to said computer system for inputting a sex of the animal; and
a sub-system within said computer system for subtracting a predetermined number of days
4 from said number of days to maximum value when said sex of the animal is female.

24. The system of claim 15 further comprising:

2 an identification writer device attached to said computer system for creating an
individualized identification device containing said number days to maximum value,
4 wherein said individualized identification device is attached to the animal after being
created.

25. The system of claim 15 further comprising:

2 an identification writer device attached to said computer system for creating an
individualized identification device containing said number days to maximum value,
4 wherein said individualized identification device is inserted into the animal after
being created.

26. The system of claim 15 further comprising:

2 a sub-system within said computer system for creating an individualized identification record
containing said number days to maximum value, wherein said individualized

- 4 identification retained for the animal after being created.
27. A method for determining a muscle size and quality in an animal prior to ranking the animal
2 in order to obtain a predetermined maximum value for the animal, said method comprising
the steps of:
- 4 (a) acquiring an image of a muscle at a predetermined internal location within the
animal; and
- 6 (b) determining said muscle size and muscle quality value from said image acquired in
step (a); and
- 8 (c) ranking the animal into a predetermined class of animals when said muscle size and
said muscle quality value meet predetermined criteria.
28. A method for determining a milk yield in an animal, said method comprising the steps of:
- 2 (a) acquiring an image of a mammary system at a predetermined location on the animal;
- (b) determining said milk yield value from said image acquired in step (a); and
- 4 (c) ranking the animal into a predetermined class of animals when said milk yield value
meets predetermined criteria.
29. The method of claim 28 wherein step (b) further comprises the step of:
- 2 (b1) identifying and counting milk secretion cells within said image of said mammary
system.
30. A system for sorting animals into pens, said system comprising:
- 2 a three dimensional measuring system connected to said computer system for measuring
each animal;
- 4 a computer system connected to said three dimensional measuring system for determining

a height of said each animal;

6 a plurality of gates for allowing entrance into a plurality of pens, one gate per pen; and
a sub-system within said computer system for selectively opening one of said plurality of
8 gates when said height of said each animal meets predetermined criteria for said one
of said plurality of gates.

31. A system for sorting animals into pens, said system comprising:

2 a three dimensional measuring system connected to said computer system for measuring
each animal;

4 a computer system connected to said three dimensional measuring system for determining
a weight of said each animal;

6 a plurality of gates for allowing entrance into a plurality of pens, one gate per pen; and
a sub-system within said computer system for selectively opening one of said plurality of
8 gates when said weight of said each animal meets predetermined criteria for said one
of said plurality of gates.

32. A method for determining a muscle size and quality in an animal carcass, said method
2 comprising the steps of:

(a) acquiring an image of a muscle at a predetermined internal location within the
4 carcass;

(b) determining said muscle size and muscle quality value from said image acquired in
6 step (a); and

(c) sorting the carcass into a predetermined class of carcasses when said quality value
8 meets predetermined criteria.

33. A method for determining a number of days to maximum value to continue feeding each of

2 a plurality of animals prior to processing the animals in order to obtain a predetermined maximum value for each of the animals, said method comprising the steps of:

- 4 (a) acquiring an image of a predetermined internal location within each animal;
- (b) measuring a percentage of intramuscular fat within said image acquired in step (a);
- 6 (c) determining said number of days to maximum value from said percentage of intramuscular fat measured in step (b);
- 8 (d) storing, for each animal, said number of days to maximum value determined in step (c);
- 10 (e) directing all animals to a common pen; and
- (f) selecting an animal as the animal passes a predetermined location within said
- 12 common pen, retrieving said number of days to maximum value for said selected animal, and when said selected animal has been fed for said number of days to
- 14 maximum value, directing said selected animal to a sorting pen.

34. A method for determining an individualized identification for each of a plurality of animals, and using said individualized identification to select a particular animal, said method comprising the steps of:

- 4 (a) acquiring an image of a predetermined internal location within each animal;
- (b) measuring a percentage of intramuscular fat within each of a plurality of voxels
- 6 within said image acquired in step (a);
- (c) determining said individualized identification from said percentage of intramuscular fat within each voxel measured in step (b);
- 8 (d) storing, for each animal, said individualized identification determined in step (c) to create a plurality of stored individualized identifications;
- 10 (f) selecting an animal as the animal passes a predetermined location within said
- 12 common pen, by performing steps (a) through (c) as the animal passes said

predetermined location, and selecting the animal when individualized identification determined in step (f) matches one of said plurality of stored individualized identifications.